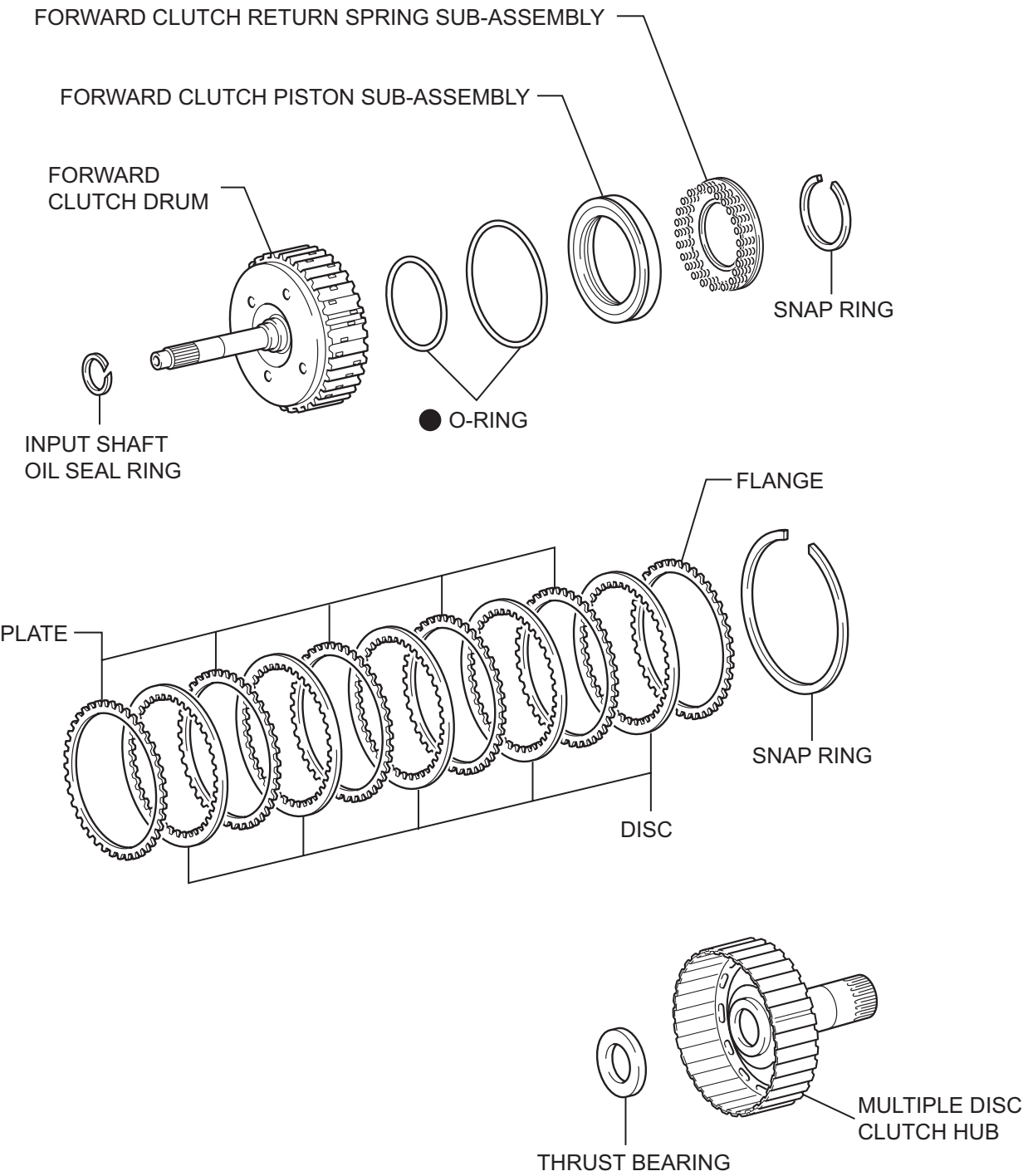


# FORWARD CLUTCH

## COMPONENTS

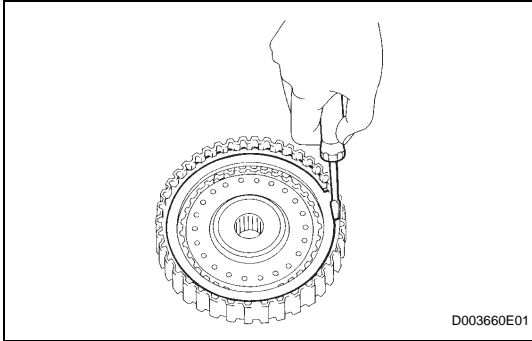
AX



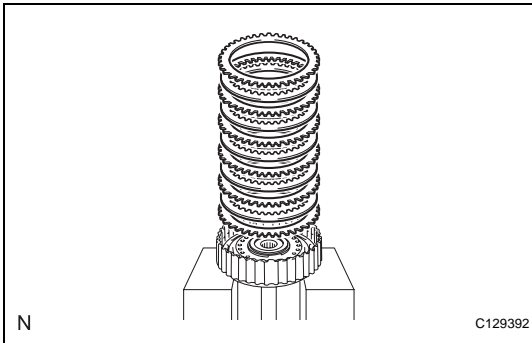
● Non-reusable part

## DISASSEMBLY

1. **INSPECT PACK CLEARANCE OF FORWARD CLUTCH** (See page [AX-228](#))

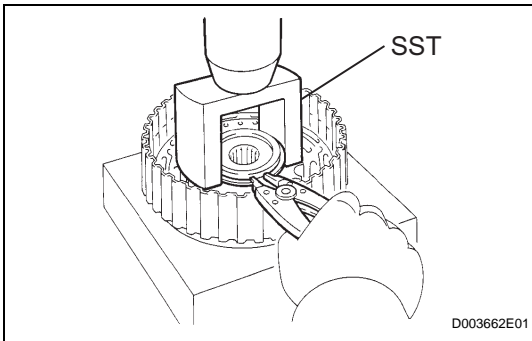


2. **REMOVE FORWARD MULTIPLE DISC CLUTCH DISC**
  - (a) Using a screwdriver, remove the snap ring.



- (b) Remove the flange, 5 discs and 5 plates.

3. **INSPECT FORWARD MULTIPLE DISC CLUTCH DISC** (See page [AX-229](#))

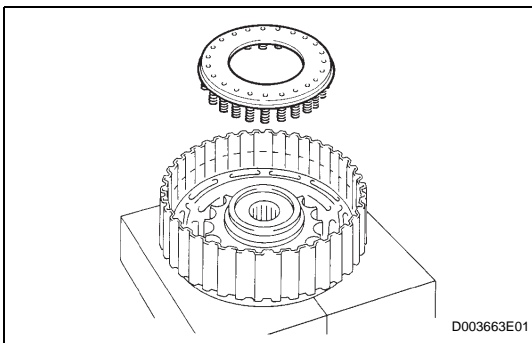


4. **REMOVE FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY**

- (a) Place SST on the spring retainer and compress the return spring with a press.

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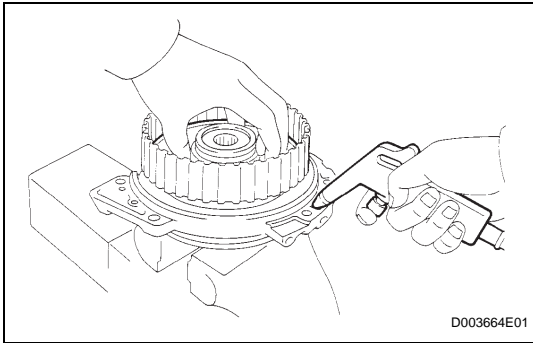
- (b) Using a snap ring expander, remove the snap ring.



- (c) Remove the piston return spring.

5. **INSPECT FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY** (See page [AX-229](#))

**AX**

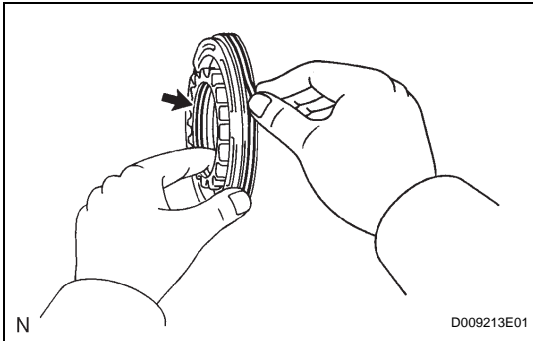


## 6. REMOVE FORWARD CLUTCH PISTON SUB-ASSEMBLY

- Place the forward clutch drum onto the oil pump.
- Holding the forward clutch piston with your hand, apply compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi) to the oil pump to remove the forward clutch piston.

### HINT:

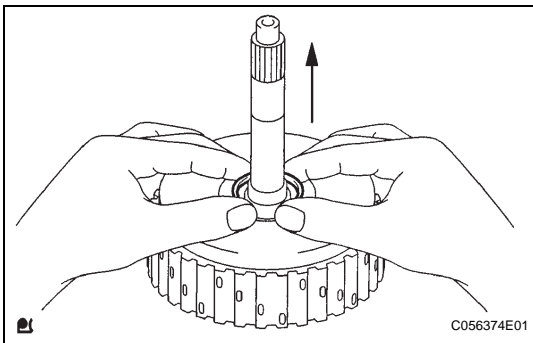
When the piston is slanted and cannot be removed, remove it by pushing down the protruding side and applying compressed air again, or using need-nose pliers (with its tips wrapped in tape).



## 7. REMOVE FORWARD CLUTCH PISTON O-RING

- Remove the 2 O-rings.

## 8. INSPECT FORWARD CLUTCH PISTON SUB-ASSEMBLY (See page [AX-229](#))



## 9. REMOVE INPUT SHAFT OIL SEAL RING

# INSPECTION

## 1. INSPECT PACK CLEARANCE OF FORWARD CLUTCH

- Install the forward clutch on the oil pump.

### NOTICE:

**Be careful not to damage the oil seal ring of oil pump.**

- Using a dial indicator, measure the forward clutch piston stroke while applying and releasing compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi).

### Standard piston stroke:

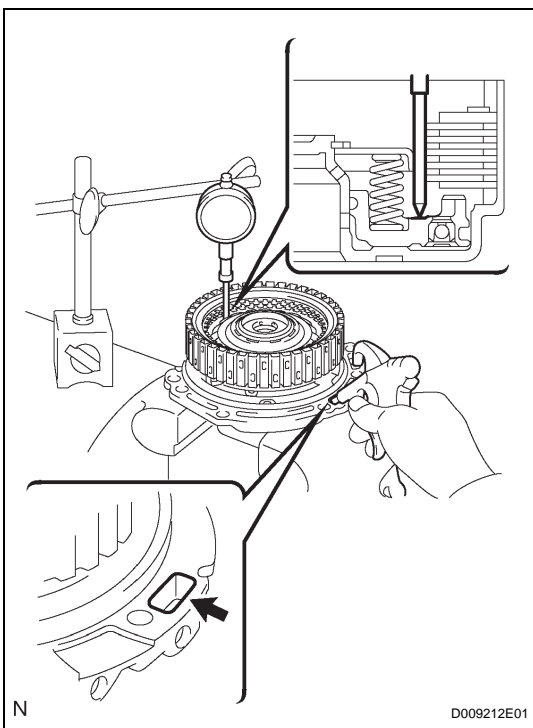
**1.74 to 2.08 mm (0.0685 to 0.0819 in.)**

If the piston stroke is less than the minimum, the parts may have been assembled incorrectly. Check and reassemble again.

If the clearance is not as specified, select another flange.

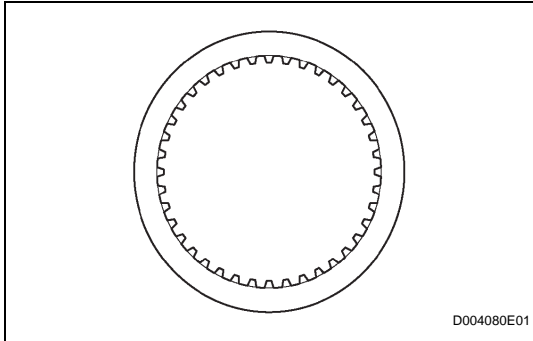
### HINT:

There are 5 different flanges in thickness.



## Standard flange thickness

No.	Thickness	No.	Thickness
1	3.00 mm (0.1181 in.)	4	3.45 mm (0.1358 in.)
2	3.15 mm (0.1240 in.)	5	3.60 mm (0.1417 in.)
3	3.30 mm (0.1299 in.)	-	-

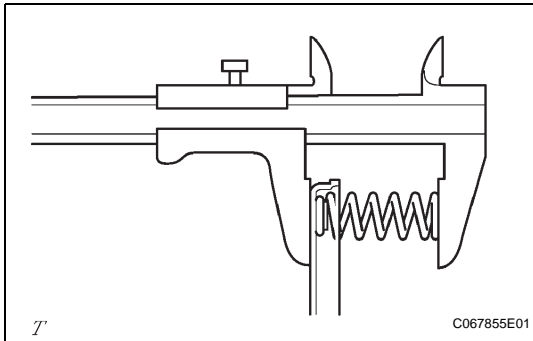


## 2. INSPECT FORWARD MULTIPLE DISC CLUTCH DISC

- (a) Check to see if the sliding surface of the disc, plate and flange are worn or burnt. If necessary, replace them.

## HINT:

- If the lining of the disc is peeling off or discolored, replace all discs.
- Before assembling new discs, soak them in ATF for at least 15 minutes.

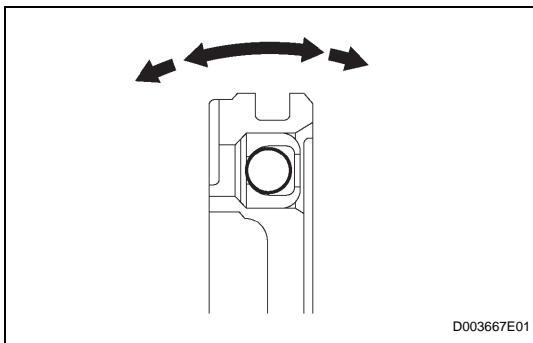


## 3. INSPECT FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Using a vernier caliper, measure the free length of the spring together with the spring seat.

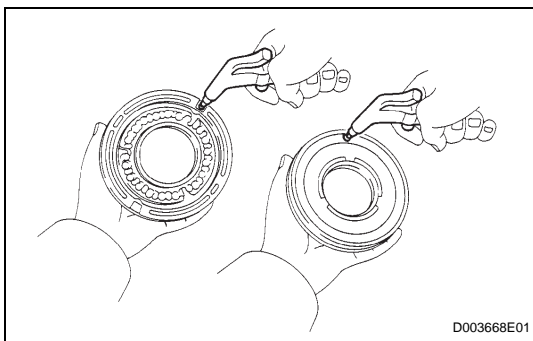
## Standard free length:

28.23 mm (1.1114 in.)



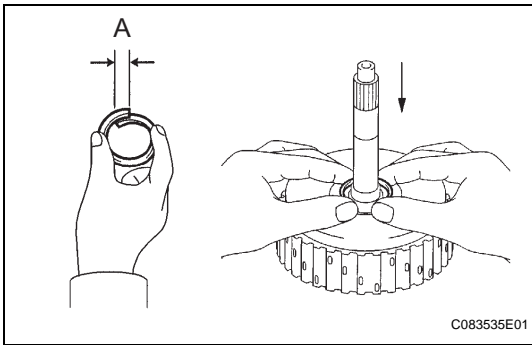
## 4. INSPECT FORWARD CLUTCH PISTON SUB-ASSEMBLY

- (a) Shake the piston to check that the check ball is not stuck.



- (b) Check that the value does not leak when applying low compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi).

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## REASSEMBLY

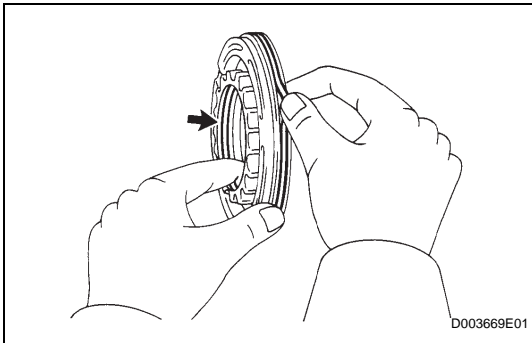
### 1. INSTALL INPUT SHAFT OIL SEAL RING

- (a) Compress the oil seal ring from both sides to reduce dimension A.

**Dimension A:**

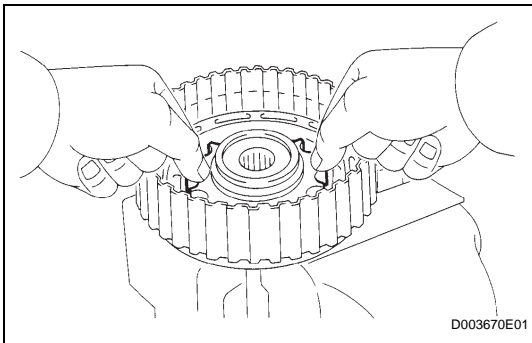
**5.0 mm (0.197 in.)**

- (b) Coat the oil seal ring with ATF and install it to the input shaft.



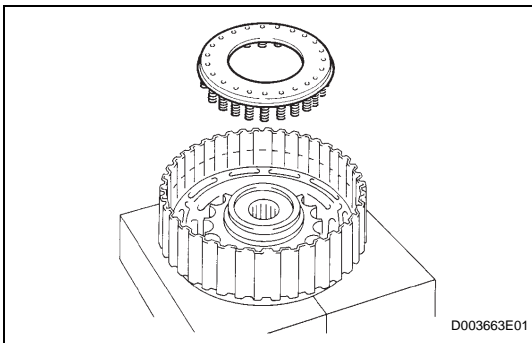
### 2. INSTALL FORWARD CLUTCH PISTON O-RING

- (a) Coat 2 new O-rings with ATF, and install them to the forward clutch piston.



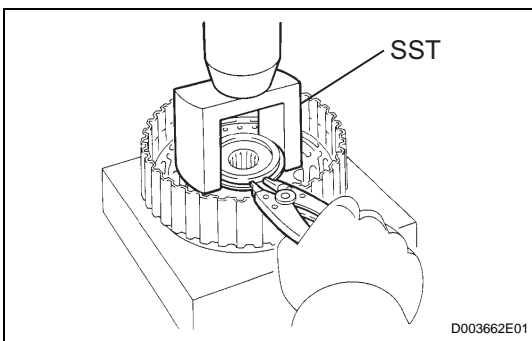
### 3. INSTALL FORWARD CLUTCH PISTON SUB-ASSEMBLY

- (a) Install the forward clutch piston to the forward clutch drum.



### 4. INSTALL FORWARD CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Place the forward clutch return spring onto the forward clutch piston.



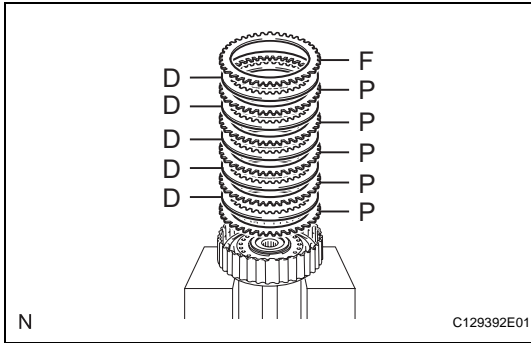
- (b) Place SST on the return spring, and compress the return spring with a press.

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- (c) Install the snap ring with a snap ring expander. Be sure the end gap of the snap ring is not aligned with the spring retainer claw.

**NOTICE:**

- Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove.



- This prevents the spring sheet from being deformed.
- Do not expand the snap ring excessively.

#### 5. INSTALL FORWARD CLUTCH FLANGE HOLE SNAP RING

- (a) Install the 5 plates, 5 discs and flange.

**Install order:**

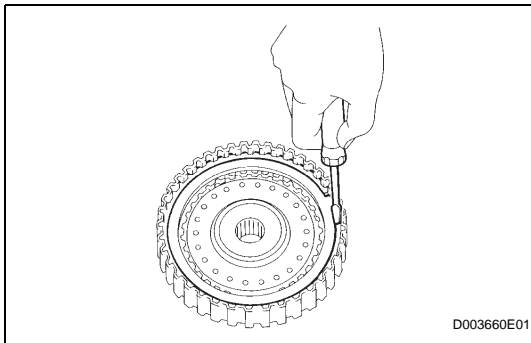
**P - D - P - D - P - D - P - D - P - D - F**

**HINT:**

P = Plate

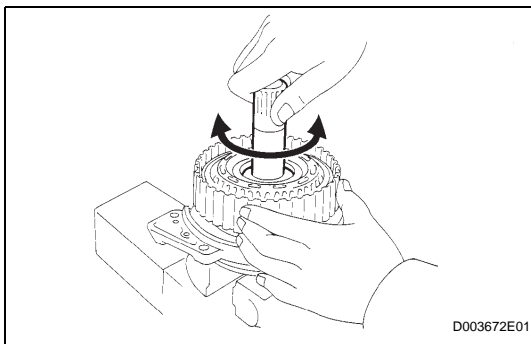
D = Disc

F = Flange



- (b) Using a screwdriver, install the snap ring.  
 (c) Check that the end gap of the snap ring is not aligned with one of the cutouts.

#### 6. INSPECT PACK CLEARANCE OF FORWARD CLUTCH (See page [AX-228](#))



#### 7. INSPECT FORWARD MULTIPLE DISC CLUTCH DISC

- (a) Inspect the clutch disc rotation.  
 (1) After inserting the multiple disc clutch into the multiple disc clutch hub, rotate the forward clutch and check that the disc lightly rotates.

**NOTICE:**

**Do not place the forward clutch in a vise.**